Engineering Assumptions & Calculations on Drum Diversion Ditch

Rainfall: 100 year storm-- Source--NOA Atlas:

   24 hour--2.65", 12 hr--2.25", 6 hr--1.90", 1 hr--1.16"

Drainage Area: Source--aerial survey contour map and planimeter.

   38 acres or 1,653,000 sq ft., or 137,750 cuft/inch of rainfall
        or 1,030,370 gallons per inch of rainfall.

Assumption: Local soil/vegetation will absorb one-half of the first hour's rainfall, and thereafter 100% will run off. Thus these rates of drainage may be calculated:

First hour--0.5 × 1.16 = 0.58" × 1,030,370 = 597,615 gallons.
        or /60 = 9,960 gpm.

   Note that the holding capacity of the basin above heap 4-5 exceeds this first hour run-off, so that ditch capacity is not a factor.

Six hour--1.90"/6 × 1,030,370/60 = 5,438 gpm.   MAX RUN-OFF RATE

12 hour--2.25"/12 ×   "   = 3,220 gpm

24 hour--2.65"/24 ×   "   = 1,896 gpm

DITCH CAPACITIES:

   The ditch dimensions are several times larger than needed to carry the maximum 100 year storm run-off rates--ref: Mining Engineering Handbood by Peele